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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,237	12/30/2004	Willem J. Quadakkers	2002P02127WOUS01	5094

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Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
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EXAMINER	
BALDWIN, GORDON	
ART UNIT	PAPER NUMBER
1775	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,237	QUADAKKERS ET AL.	
	Examiner	Art Unit	
	Gordon R. Baldwin	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-18,20 and 22-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-18,20,22-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12-18 and 20-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al. (US 5,507,623).

Kojima teaches an oxidation resistant turbine component comprising MCrAlY coating layers (col. 2, ln. 45-67). Kojima further teaches that the MCrAlY coating layers comprises an intermediate alloy coating of NiCoCrAlY and an outer alloy layer of NiCrAlY (col. 4, ln. 27-64). Kojima teaches the intermediate layer has a composition of 10-30% Cr, 5-15% Al, 0.1-1.5% Y and the balance being Co and Ni with a Co/Ni ratio of 0.5 or more (col. 4, ln. 42-51). Kojima further teaches that outer layer has a composition of 10-30% Cr, 5-15% Al and 0.1-1.5% Y with the balance being Ni (col. 4, ln. 51-54). Kojima also exemplifies embodiments wherein the outer layer is an alloy of NiCoCrAlY wherein the Co content is between 20-30 wt%, Cr content is between 18-21 wt% and the Y content is 0.5 wt% (Table 1, examples 22-24).

Kojima does not exemplify an embodiment wherein the outer layer is a NiCoCrAlY alloy with the Al content being less than 6.5%. However, Kojima teaches that the Al content in the outer layer may be as low as 5% and provides embodiments wherein the Al content in the outer layer is 4 and 5 wt% (col. 4, ln. 51-54 and Table 1,

examples 9-10). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have employed and outer layer having a NiCoCrAlY composition having the claimed amount of the recited elements and between 5-6.5 wt% Al since Kojima teaches that such materials are suitable for use.

Regarding the limitation that the outer layer consists of a pure γ phase, Kojima teaches that the γ phase is large and the β phase is intended to be reduced as much as possible (col. 3, ln. 28-40). As such, it would have been obvious to one of ordinary skill in the art to have formed the outer layer to consist of a γ phase since Kojima teaches that would be desirable.

Regarding claims 13 and 14, Kojima teaches the intermediate layer is on the substrate (Figure 6A) and that 2 layers are used to form the protective layer.

Regarding claim 15, Kojima teaches that the layers are subjected to a diffusion treatment which result in a graded concentration (col. 8, ln. 50-64).

Regarding claims 16 and 24, although Kojima does not specifically recite that the outer layer is thinner than the intermediate layer, absent a teaching of the criticality or showing of unexpected results, the relative thickness of the layers would not provide a patentable distinction over the prior art. It would have been obvious to one of ordinary skill the provide the layers in any relative thicknesses that would still provide suitable protection to the substrate.

Regarding claims 17-18 and 28-29, Kojima teaches that additional elements such as Ta, Zr, and Ce may be added to the intermediate and upper layers (col. 4, ln. 13-27).

Regarding claims 20 and 30, although Kojima does not exemplify an embodiment wherein the outer layer is a NiCoCrAlY alloy containing the claimed elements and Al in a content between 5-6% such as claimed, it does teach ranges which overlap those claimed. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have employed and outer layer having a NiCoCrAlY composition having the claimed amount of the recited elements and between 5-6.0 wt% Al since Kojima teaches that such materials are suitable for use.

Regarding claims 21-22, although Kojima does not recite the addition of Ti or Sc to the intermediate layer, it would have been obvious to one of ordinary skill in the art have added any other elements which are known to be suitable for use in a NiCoCrAlY layer.

Regarding claim 23, it is conventional to add thermal barrier coatings onto MCrAlY layers to provide additional high temperature protection to the substrate material. As such, it would have been obvious to one of ordinary skill in the art to have added a thermal barrier coating on the outer layer to provide the substrate with increased high temperature protection.

Regarding claim 25, the claims are drawn to the product, not the method of making. Absent a teaching of how the claimed heat treatment in an atmosphere with the claimed low oxygen partial pressure would provide a material difference between the claimed product and that of the prior art, it would not provide a patentable distinction over the prior art.

Regarding claim 26, Kojima teaches the substrate is a gas turbine component (col. 1, ln. 11-15).

Response to Arguments

Applicant's arguments filed 12/15/2006 have been fully considered but they are not persuasive.

Applicant's argument that the use of cobalt or cobalt and nickel by Kojima in the secondary or upper layer is problematic and possibly teaches away from claimed invention is not considered to be persuasive. While Kojima may not advocate the embodiments presented by the applicant, Kojima is still considered to teach the claimed invention even though it may not be the preferred embodiment, because all the disclosures in a reference must be evaluated for what they fairly teach one of ordinary skill in the art even though the art teachings relied upon are phrased in terms of non-preferred embodiment or even as being satisfactory for the intended purpose, In re Boe, 148 USPQ 507 (CCPA 1966); In re smithy, 65 USPQ 167 (CCPA 1945; In re Nehrenberg, 126 USPQ 383 (CCPA 1960); Watanbe, 137 USPQ 350 (CCPA 1963)

In regard to the argument that the overlapping of the aluminum would not be within the realm of knowledge of a person skilled in the art, however since one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Kojima overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed

ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

> "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages", In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

In regard to the argument concerning the gamma phase of the outer layer of the claimed invention, since no difference in the making or processing of the article is shown in the specification for why another article having the same materials in approximately the same ranges would be in a different phase. Therefore the arguments are not considered to traverse the rejection on this matter.

As for the percentages of the outer layer not being of a sufficient percentage to support the formation of the aluminum oxide layer, since Kojima teaches that the outer layer can have an aluminum percentage of 5-15% (Col. 4 lines 51-54), which is greater than the claimed invention, the aluminum concentration is considered to be sufficient to form the aluminum oxide layer.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GRB

JENNIFER MCNEIL
SUPERVISORY PATENT EXAMINER
3/4/07